

## CLAIMS:

1. A system (10), comprising:  
N weighting-filter devices (where  $N \geq 2$ ) (20), each receiving an input signal and a M-value feedback signal (where  $M \geq 2$ ) and each generating M filtered output signals;  
a path sorter (30) for applying at least one cost function to the N\*M filtered  
5 output signals to produce the N cheapest paths;  
a normalizer (40) for normalizing the N cheapest paths; and  
an output device (50) for selecting an output signal and for supplying the N M-value feedback signals to the N weighting-filters (20).
- 10 2. The system (10) of claim 1, wherein the at least one cost function is a function of at least one output signal characteristic.
3. The system (10) of claim 1, wherein each of the N weighting-filter devices (20) includes a M-value generator and a filter.
- 15 4. The system (10) of claim 3, wherein each weighting-filter device (20) includes a subtractor for subtracting the input signal and the M-value feedback signal and filtering the M output signals.
- 20 5. The system (10) of claim 1, wherein the M-value feedback signal includes two values, -1 and 1.
6. The system (10) of claim 1, wherein N is fixed or adaptive.
- 25 7. The system (10) of claim 4, wherein each of the weighting-filter devices (20) includes a fixed order, fixed frequency response filter; a fixed order, variable frequency response filter; a variable order, fixed frequency response filter; a variable order, variable frequency response filter; or a noise-shaping filter adjustable for Direct Stream Transfer (DST) performance.

8. The system (10) of claim 1, wherein the system (10) is implemented in software and/or hardware.
- 5 9. The system (10) of claim 1, wherein the system (10) is used for analog-digital, digital-analog, and/or digital-digital (AD/DA/DD) conversion and/or pulse width modulation (PWM).
10. A method, comprising:
- 10 receiving an input signal and at least two M-value feedback signals (where  $M \geq 2$ ) and generating M\*N filtered output signals;
- applying at least one cost function to the M\*N filtered output signals to produce the N cheapest paths;
- normalizing the N cheapest paths; and
- 15 selecting an output signal from the N cheapest paths and for generating the at least two M-value feedback signals.